**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, DC 20554**

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| In the Matter of | ) | |
| | ) | |
| Use of Spectrum Bands Above 24 GHz For Mobile Radio Services | ) | GN Docket No. 14-177 |
| | ) | |
| Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands | ) | IB Docket No. 15-256 |
| | ) | |
| Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band | ) | RM-11664 |
| | ) | |
| Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services | ) | WT Docket No. 10-112 |
| | ) | |
| Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operation | ) | IB Docket No. 97-95 |

# REPLY COMMENTS OF T-MOBILE USA, INC.

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## REPLY COMMENTS OF T-MOBILE USA, INC.

T-Mobile USA, Inc. ("T-Mobile")[1/] submits these reply comments in response to the comments of other parties on the Second Further Notice of Proposed Rulemaking ("*Second FNPRM*")[2/] in the above-referenced proceeding, in which the Commission seeks comment on

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1/ T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

2/ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.,* Second Report and Order, Second Further Notice of Proposed Rulemaking, Order on Reconsideration, and Memorandum

further actions it can take to make millimeter wave spectrum available for Fifth Generation ("5G") wireless services. T-Mobile commends those efforts. Consistent with the record in this proceeding, the Commission should begin the process necessary to license as many of these bands as possible in a single auction, investigate the use of additional millimeter wave band spectrum that can be dedicated for terrestrial use and limit any potential satellite impingement to the use of the bands.

## I. THE COMMISSION SHOULD INITIATE THE PROCESS OF AUCTIONING MILLIMETER WAVE BAND SPECTRUM IN 2018

Comments filed in response to the *Second FNPRM* make it clear that the Commission should initiate the process to auction millimeter wave spectrum in 2018 and auction all millimeter wave bands for which service rules have been adopted together so more entities have access to millimeter wave spectrum.[3/]

### A. The Record Supports the Commission Taking the Steps Necessary to Auction Millimeter Wave Spectrum.

The Commission has correctly observed that it is critical to move forward as quickly as possible to auction the millimeter wave spectrum that it made available in order to bring the

Opinion and Order, GN Docket No. 14-177, *et al*., FCC 17-152 (rel. Nov. 22, 2017) (subparts referred to respectively as the "*Second Report and Order*," "*Second FNPRM*," "*Order on Reconsideration*," and "*Memorandum Opinion and Order*").

3/ *See, e.g.*, Comments of the Consumer Technology Association, GN Docket No. 14-177, *et al.*, at 5 (filed Jan. 23, 2018) ("CTA Comments") (urging the Commission to release a roadmap that describes the timeline to release spectrum and dates in "the near term" for holding spectrum auctions); Comments of Nokia, GN Docket No. 14-177, *et al.*, at 2 (filed Jan. 23, 2018) ("Nokia Comments") (requesting that the Commission establish the auction procedures for the 24 GHz, 28 GHz, 37/39 GHz, and 47 GHz spectrum bands because it is in the public interest to put these bands to use "without further delay"); Comments of Starry, Inc., GN Docket No. 14-177, *et al.*, at 2 n.3 (filed Jan. 23, 2018) ("Starry Comments") (commenting that the Commission should "expeditiously schedule an auction for all mmW licenses it holds in its inventory"). An auction will unlock innovation and investment in the millimeter wave bands. *See* Comments of the Competitive Carriers Association, GN Docket No. 14-177, et al., at 10-11 (filed Jan. 23, 2018) ("CCA Comments").

benefits of broadband services to consumers.[4/] T-Mobile agrees, but recognizes that the Commission has asserted that it does not have authority to accept auction up-front payments. Nevertheless, as T-Mobile stated before, the Commission can take steps necessary to prepare for the auction of that spectrum now, so that when those issues are resolved, the Commission will be in a position to commence an auction.[5/] There is no impediment to the Commission taking those initial steps – issuing new licenses in the 27.5-28.35 GHz ("28 GHz"), and 38.6-40 GHz ("39 GHz") bands to incumbents; determining the repacking process for the 39 GHz band; and releasing a Public Notice proposing the auction procedures – so that the Commission is in a position to initiate an auction in the near-future.

Multiple parties agree.[6/] Like T-Mobile, CTIA notes that the issues regarding auction deposits should not inhibit the Commission from issuing a Public Notice seeking comment on the process to auction millimeter wave spectrum.[7/] CTIA correctly observes that the auction process involves several steps and that the Commission should begin the process now.[8/] Likewise, AT&T suggests that the Commission adopt auction rules for the spectrum bands that have already been allocated for Part 30 Upper Microwave Flexible User Service ("UMFUS") use

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4/ *See Second Report and Order* ¶6.

5/ *See* Comments of T-Mobile USA, Inc., GN Docket No. 14-177, *et al.*, at 14-15 (filed Jan. 23, 2018) ("T-Mobile Comments"). T-Mobile notes that H.R. 4986, Ray Baum's Act of 2018, which passed the House Energy and Commerce Committee on February 14, 2018, contains provisions that would allow the Commission to deposit upfront payments in the U.S. Treasury. Accordingly, the relief from the current limitation that is potentially on the horizon, makes the Commission action to prepare for upcoming auctions more urgent.

6/ *See* Comments of AT&T Services, Inc., GN Docket No. 14-177, *et al.*, at 4 (filed Jan. 23, 2018) ("AT&T Comments"); CCA Comments at 11; Comments of CTIA, GN Docket No. 14-177, *et al*., at 2-5 (filed Jan. 23, 2018) ("CTIA Comments").

7/ CTIA Comments at 2-3.

8/ *Id.* at 5 (explaining that taking the necessary administrative steps "will increase the chances of a timely auction once the upfront payment issue and any other issues have been resolved").

regardless of the upfront payment issue. AT&T explains further that the Commission need not delay auctioning millimeter wave spectrum that has been "laying in inventory for several years."[9/]

### B. It Is Critical that the Commission Auction All Millimeter Wave Bands Together for Which Service Rules Have Been Adopted Together.

Multiple parties have expressed concern about entities acquiring so much millimeter wave spectrum that they can depress competition and have urged the Commission to employ either a pre-auction screen or a post-auction case-by-case review. For instance, U.S. Cellular opposes the elimination of the existing pre-auction spectrum aggregation limit, arguing that without spectrum aggregation policies, small and regional carriers will be unable to acquire millimeter wave spectrum and underserved areas may not benefit from innovative 5G services.[10/] CCA suggests that a pre-auction spectrum limit will curb anti-competitive spectrum aggregation and avoid the consolidation of high-band spectrum.[11/] Starry also supports a pre-auction screen, stating that pre-auction spectrum review will ensure a competitive auction that reflects the value and utility of the spectrum.[12/]

As its comments noted, T-Mobile shares those spectrum aggregation concerns, particularly in view of transactions involving millimeter wave spectrum recently approved by the Wireless Telecommunications Bureau. Those transactions have resulted in Verizon and AT&T acquiring a significant percentage of the 28 GHz and 39 GHz band spectrum.[13/] As Figure 1

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9/ AT&T Comments at 4.

10/ *See* Comments of United States Cellular Corporation, GN Docket No. 14-177, *et al*., at 6 (filed Jan. 23, 2018) ("U.S. Cellular Comments").

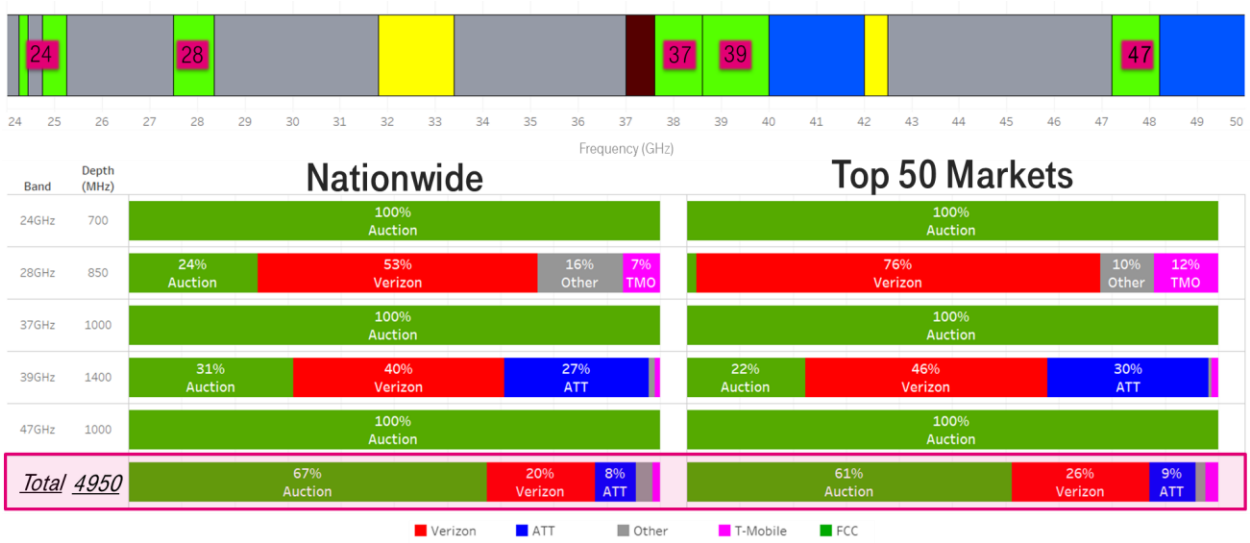
11/ *See* CCA Comments at 6.

12/ *See* Starry Comments at 3-4.

13/ *See Application of AT&T Mobility Spectrum LLC and FiberTower Corporation For Consent to Transfer Control of 39 GHz Licenses*, Memorandum Opinion and Order, DA 18-125 (rel. Feb. 8, 2018)

below demonstrates, Verizon already holds over three quarters of the 28 GHz band in the top 50 markets and Verizon and AT&T together hold the same percentage of the 39 GHz spectrum in those markets.

**Figure 1 Spectrum Holdings in Millimeter Wave Bands**




While spectrum aggregation limits are one way to address this threat to competition, the Commission can take two other actions to ameliorate the negative effects of Verizon's and AT&T's acquisitions. *First*, as noted in greater detail below, the Commission can make more millimeter wave spectrum available to permit additional entities access to millimeter wave

(approving transfer of 39 GHz licenses from FiberTower to AT&T); *Application of Verizon Communications Inc. and Straight Path Communications, Inc. for Consent to Transfer Control of Local Multipoint Distribution Service, 39 GHz, Common Carrier Point-to-Point Microwave, and 3650-3700 MHz Service Licenses*, Memorandum Opinion and Order, DA 18-52 (rel. Jan. 18, 2018) (approving transfer of 28 GHz and 39 GHz licenses from Straight Path to Verizon); *Application of Cellco Partnership d/b/a Verizon Wireless and XO Holdings For Consent to Transfer Control of Local Multipoint Distribution Service and 39 GHz Licenses*, Memorandum Opinion and Order, 32 FCC Rcd. 10125 (2017) (approving transfer of 28 GHz and 39 GHz licenses from XO Holdings to Verizon).

spectrum.[14/] *Second*, the Commission should auction all of the millimeter wave band spectrum currently allocated for mobile broadband at once and as soon as possible.

Separate auctions for the 28 GHz and 37/39 GHz bands will only serve to further entrench AT&T and Verizon. Auctioning only those bands will allow AT&T and Verizon to perfect their positions in the millimeter wave spectrum, create little opportunity for other entities and will allow those already dominant companies to have a head-start deploying millimeter wave spectrum. Several commenters agree. CCA notes that access to the millimeter bands may be foreclosed by the "AT&T and Verizon duopoly" in which the carriers "are poised to acquire vast amounts of mmW spectrum on the secondary market" and that an auction will allow all stakeholders to fairly acquire valuable spectrum and compete.[15/] Accordingly, auctioning all available bands will permit greater competition by allowing entities other than AT&T and Verizon to acquire millimeter spectrum and implement business plans relying on that spectrum. It is also critical that the Commission conduct that auction as soon as possible, before AT&T and Verizon are able to use their early access to millimeter wave spectrum to their competitive advantage.[16/]

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[14/] *See also infra* Section II.A.

[15/] CCA Comments at 10.

[16/] Indeed, recent developments indicate that the Commission may wish to conduct an auction for all bands *except* 39 GHz as soon as possible. In a recent *ex parte* letter, AT&T suggests a voucher-based plan for rationalizing the 39 GHz band. *See* Letter from Alex Starr, Assistant Vice President, AT&T to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (Dec. 12, 2017). Verizon has objected to that plan. *See* Letter from Gregory M. Romano, Vice President & Associate General Counsel, Verizon to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (Jan. 25, 2018). T-Mobile has acknowledged the benefits of the AT&T proposal but also the legitimate Verizon concerns. *See* Letter from Steve B. Sharkey, Vice President, Government Affairs Technology and Engineering Policy to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177 (Feb. 14, 2018). Whatever approach to restructuring the 39 GHz band to maximize its use the Commission elects to take will require time to implement. That implementation should not delay the auction of the remainder of the already allocated millimeter wave spectrum.

the record supports commission review of additional spectrum bands, operability across the 24 ghz bands and resolution of the use of the 37-37.6 ghz Band, but not additional performance metrics

### C. Parties Agree that the Commission Should Examine Use of the 32 GHz, 42 GHz, 50 GHz and 26 GHz Bands for Mobile Broadband.

Commenters express wide support for T-Mobile's suggestion that the Commission continue to evaluate other millimeter wave bands for flexible terrestrial wireless use. AT&T agrees with T-Mobile that the Commission should quickly reallocate the 31.8-33.4 GHz ("32 GHz"), 42-42.5 GHz ("42 GHz"), and 50.4-52.6 GHz ("50 GHz") bands for millimeter wave services in order to ensure that the necessary spectrum is available for wireless broadband services.[17/] CTIA also urges the Commission to identify, allocate and license additional high-band spectrum for licensed, exclusive terrestrial use in order to cement America's position as a 5G leader.[18/] It encourages the Commission to allocate the 32 GHz, 42 GHz, and 50 GHz bands for licensed terrestrial use and suggests that the Commission seek comment on the 25.25-27.5 GHz ("26 GHz") band for exclusive, licensed use due to the attention that the 26 GHz band is receiving from countries in Asia and the European Union.[19/] CCA also urges the Commission to make more millimeter wave spectrum available.[20/]

Commenters also cite with approval T-Mobile's Technical Study[21/] that assesses coexistence between 5G wireless broadband operations deployed in the 32 GHz, 42 GHz and 50

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17/ AT&T Comments at 4-5.

18/ *See* CTIA Comments at 2, 5.

19/ *Id.* at 6, 8-9.

20/ *See* CCA Comments at 10 (reiterating its request that the Commission make more millimeter wave spectrum available to competitive carriers).

21/ *See* Letter from Steve B. Sharkey, Vice President, Government Affairs Technology and Engineering Policy, T-Mobile to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, *et al.*, (Oct. 2, 2017) (submitting the technical study to the Commission) ("T-Mobile Technical Study").

GHz bands and passive services such as radio astronomy services ("RAS") and the Earth Exploration Satellite Service ("EESS").[22/] CTIA, for instance, finds the T-Mobile Technical Study promising and suggests that the Commission can fully protect adjacent passive services, so long as "moderate operating constraints" are imposed.[23/] Nokia also identifies the findings that 5G operations can readily coexist with RAS and EESS in the T-Mobile Technical Study to support its recommendation that the Commission consider allocating and developing service rules for the 32 GHz, 42 GHz, and 50 GHz bands.[24/]

Even the National Radio Astronomy Observatory ("NRAO") does not contest T-Mobile's assertion that the 32 GHz band may be used for terrestrial wireless applications.[25/] While NRAO did not agree with the manner in which T-Mobile derived the size of the coordination zones that would be required to protect operations in the 31.3-31.8 GHz band, it did not challenge T-Mobile's essential premise – that the use of coordination zones, appropriately configured, would permit use of the 32 GHz band by terrestrial services.[26/] Indeed, NRAO stated that "[t]here are relatively few US radio astronomy stations and protecting their use of the spectrum is a matter of paying attention to detail in the context of mutual cooperation between the radio astronomy and 5G operators." T-Mobile will be pleased to work with NRAO and others to structure the appropriate protection criteria.

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22/ *See* CTIA Comments at 6-7.

23/ *Id.* at 7.

24/ Nokia Comments at 6.

25/ *See* Letter from Harvey S. Liszt, Astronomer and Spectrum Manager, National Radio Astronomy Observatory to Marlene H. Dortch, Secretary, FCC, GN Docket No. 14-177, *et al.*, (Feb. 7, 2018).

26/ *See id*.

### D. Parties Agree that an Operability Requirement Across the 24 GHz Band Is Appropriate but Should Not Delay Auction of the Band.

The record supports the Commission's proposed operability requirement for the 24 GHz band.[27/] Some wireless carrier interests suggest that operability would harmonize the 24 GHz band with the operability requirements adopted for the 28 GHz, 37 GHz, and 39 GHz bands.[28/] Others believe that an operability requirement would permit small providers to "benefit from the scale generated by equipment capable of operating across an entire band or adjacent bands"[29/] and promote competition.[30/] Equipment manufacturers also support operability in the 24 GHz band, stating that there is a need "to enable low cost, general purpose equipment" for service providers and end users.[31/] However, as CTIA notes, the development of those requirements should not affect the corresponding auction.[32/] If parties are aware of the operability obligations, they can participate in an auction even if those requirements are not yet finalized.

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27/ Entities across industries support the Commission's operability proposal. *See* AT&T Comments at 10 (finding the proposed operability requirement in the 24 GHz band consistent with prior UMFUS rules); CCA Comments at 8 (explaining that operability across the entire 24 GHz band will promote competition); CTIA Comments at 15; Starry comments at 5; U.S. Cellular Comments at 2-3; CTA Comments at 6-7.

28/ *See* AT&T Comments at 10. However, AT&T states that the Commission should be cautious in adopting any operability requirements that are overly burdensome and inhibit the deployment of innovative services in the band. *See id.* at 10-11.

29/ *See* CCA comments at 8.

30/ Starry comments at 5 ("Without operability requirements, [the largest nationwide wireless providers] are incentivized to inhibit competitive access to network equipment and devices."). U.S. Cellular, in particular, notes that the fragmented nature of the 24 GHz band necessitates operability. *See* U.S. Cellular Comments at 2-3.

31/ *See* Comments of Huawei Technologies Co., Ltd, GN Docket No. 14-177, *et al.*, at 6-7 (filed Jan. 23, 2018) ("Huawei Comments"); CTA Comments at 6-7.

32/ *See* CTIA Comments at 15-16 (explaining that "the development of an operability requirement for a given band should not adversely affect the timing for the corresponding auction of that spectrum" and that the Commission should proceed with auctioning 24 GHz spectrum while the operability requirements are finalized).

### E. The Commission Should Resolve the Use of the 37-37.6 GHz Band, but that Resolution Should Not Delay Auction of the Remainder of the 37/39 GHz Band.

The Commission has yet to address how it will permit use of the 37-37.6 GHz band. A petition for reconsideration remains pending asking that the Commission designate the band for exclusive use for non-federal users.[33/] If the Commission retains the current designation of the band for shared federal/non-federal use, it must still develop protocols for that sharing. Accordingly, CTIA, like T-Mobile, urges the Commission not to delay the auction process for the 37/39 GHz band while the framework for the use of the 37-37.6 GHz remains under review.[34/] For the reasons noted above, auction of the millimeter wave spectrum should occur soon before further competitive damage occurs. Delaying that auction until matters related to the 37-37.6 GHz band are resolved is contrary to the public interest.

### F. Parties Agree that Adopting Additional Performance Metrics Is Premature and that a Flexible Approach Is More Appropriate.

Most commenters agree that the Commission should not adopt supplemental performance metrics tailored to Internet of Things ("IoT") deployments.[35/] AT&T advocates for a flexible case-by-case approach requiring licensees to submit an alternative showing of performance and buildout, which the Commission would review.[36/] 5G use cases and services are still being

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33/ *See* Petition for Reconsideration of CTIA, GN Docket No. 14-177, *et al.*, at 24-26 (filed Dec. 14, 2016) (arguing that there is "considerable record evidence supporting exclusive non-federal licensing" and that the Commission's decision should be reconsidered).

34/ *See* CTIA Comments at 10 (citing that it previously sought reconsideration of the Commission's decision to allocate the 37-37.6 GHz band on a co-primary basis between federal and non-federal users); *see also id.* at 11.

35/ *See, e.g.*, Comments of Alaska Communications, GN Docket No. 14-177, *et al.*, at 5 (filed Jan. 23, 2018) (urging the Commission to refrain from imposing build out obligation on entities such as Alaska Communications that are in the process of fulfilling the Commission's Connect America Fund obligations in remote and underserved areas).

36/ AT&T Comments at 8.

designed and it would be premature for the Commission to adopt buildout or performance requirements that preclude certain use cases.[37/] CCA states that additional performance metrics are unnecessary at this time because stakeholders and the Commission do not have a complete understanding of how IoT services will be implemented.[38/] CTIA suggests that because 5G use cases are only beginning to be developed, the Commission should provide licensees with flexible performance requirements and should identify a list of flexible options that satisfy performance requirements.[39/] Likewise, CTA supports a flexible performance requirement that includes safe harbors performance benchmarks such as a combination of links that are met, an average number of connections, and deployment of a certain number of fixed and mobile access points.[40/]

## II. THE COMMISSION SHOULD LIMIT USE OF THE 24 GHz BAND FOR SATELLITE OPERATIONS

### A. Parties Agree with T-Mobile that the 24 GHz Band Should be Designated Primarily for Terrestrial Operations.

The Commission proposes to license Fixed Satellite Service ("FSS") earth stations in the 24 GHz band on a co-primary basis.[41/] Several parties advocate for measures that ensure that terrestrial operations are not unnecessarily impeded in the 24 GHz band. For instance, CCA supports clear guidelines that promote mobile terrestrial use in the 24 GHz band. Such

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37/ *See id.* at 7-8.

38/ *See* CCA Comments at 3-4.

39/ *See* CTIA Comments at 12.

40/ CTA Comments at 6 ("Build-out or other performance requirements should provide flexibility for innovation while reflecting the strengths and weaknesses of these spectrum bands."). In contrast, Verizon suggests that the Commission adopt its proposal to add additional performance metric based on geographic area coverage, arguing that the 25% geographic area coverage corresponds well with the 40% existing population coverage metric under Part 30. Nevertheless, Verizon acknowledges that the Commission should offer licenses the flexibility to choose among any approved metric to help encourage 5G deployment. Verizon Comments at 3-4.

41/ *Second FNPRM* ¶94.

guidelines include limits on population coverage, the number of earth station locations in a Partial Economic Area, and a prohibition on earth stations in certain places.[42/] CCA argues that without such guidelines to protect UMFUS use, the utility of millimeter spectrum would decrease for wireless carriers.[43/] CTIA suggests that the Commission apply the 28 GHz sharing requirements to the 24 GHz band to protect the 24 GHz band from broader FSS use and assure terrestrial operators that FSS use of the band would be coordinated prior to deployment.[44/]

T-Mobile agrees, but asks the Commission to go further and limit FSS sharing with UMFUS in the 24.75-25.25 GHz band. While the Commission may retain the current use of the band for Broadcast Satellite Service feeder links, there is no basis for expanding use of the band for satellite use. The Commission need not create additional opportunities for FSS operations; sufficient spectrum has already been made available for satellite operations. Moreover, the demand for satellite broadband is lacking and satellite interests have failed to justify the need for broader use of the band.[45/]

### B. SIA and AT&T Fail to Justify Why Additional Capacity for Satellite Systems Is Necessary.

In contrast, the Satellite Industry Association ("SIA") and AT&T assert that the Commission should create additional opportunities for FSS operations in the millimeter wave bands. [46/] There is no justification for SIA's and AT&T's claims. The Commission made four

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42/ *See* CCA Comments at 9-10. CCA is pleased with the requirements for FSS, which are meant to protect terrestrial services, but urges the Commission to ensure adequate protections for UMFUS use in the band. *See id.* at 9.

43/ *See id.* at 10.

44/ *See* CTIA Comments at 14.

45/ *See infra* Section III.B.

46/ Comment of the Satellite Industry Association, GN Docket No. 14-177, *et al.*, at 6-7 (filed Jan. 23, 2018); *See* AT&T Comments at 6.

gigahertz of spectrum available in the *Memorandum Opinion and Order* and has permitted satellite operations in the 28 GHz, 37 GHz, and 39 GHz bands [47/] without any evidence of demand for such satellite capacity. Now, the Commission seeks to make *even more* millimeter wave spectrum available – an action that would be unfounded based on the lack of any evidence demonstrating the need for satellite broadband in comparison to the ever-growing demand for terrestrial broadband services.[48/] Before the Commission allows further impingement of millimeter wave spectrum that has been allocated for terrestrial operations, there must be some evidence that the current millimeter wave spectrum designated for satellite use will not be sufficient. No such evidence exists today.

### C. No HAPs Use Should Be Permitted in the 24 GHz Band.

The Elefante Group ("Elefante") urges the Commission to permit stratospheric-based communications platforms in the 25.25-27.5 GHz band, which Elefante argues will play a pivotal role in the timely deployment of 5G services nationwide.[49/] Elefante claims that it has plans to deploy those platforms to support terrestrial broadband communications and IoT-enabling solutions,[50/] suggests that the Commission initiate a proceeding to create an allocation and adopt service rules in the band to enable its proposed service.[51/] However, the Commission should not designate any of the spectrum already allocated or subject to evaluation in this proceeding for stratospheric communications systems. The need and demand for stratospheric communications

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47/ *Memorandum Opinion and Order* ¶¶189, 192.

48/ *See* T-Mobile Comments at 6 n.17.

49/ *See generally* Comments of Elefante Group, Inc., GN Docket No. 14-177, *et al*., at 2-3 (filed Jan. 23, 2018) ("Elefante Comments").

50/ *See, e.g.*, Letter from Edward A. Yorkgitis, Jr., *et al.*, Counsel to Elefante Group, Inc. to Marlene H. Dortch, Secretary, FCC (Sept. 8, 2017); Elefante Comments at 2-3.

51/ *See* Elefante Comments at 2, 6.

is speculative, compared to the demonstrated requirement for additional millimeter wave spectrum to support 5G operations.

### D. Because Satellite Use of the Bands Will Be Limited, the Commission Need Not Address Aggregate Interference Issues.

SIA argues that because the aggregate interference into satellite receivers in the 24 GHz band is similar to the 28 GHz and 47 GHz bands, the Commission should ensure that UMFUS operations protect all spacecraft from aggregate interference resulting from operations in the 24 GHz band.[52/] SIA's request is premised on expanded use of the 24 GHz band for satellite operations. But T-Mobile has urged that the Commission *not* permit additional satellite use of the band. Because there is limited incumbent use of the band (which would remain under T-Mobile's approach), concerns about aggregate interference into those receivers can be easily addressed.

Moreover, as CTIA explains, there is no basis for the Commission to revisit its prior decision regarding aggregate interference.[53/] And Nokia notes that there is substantial evidence in the record demonstrating that aggregate interference limits on terrestrial services should not be imposed.[54/] Nokia correctly observes that in prior phases of this proceeding, the Commission determined that advocates for aggregation limits were unpersuasive in their claims that aggregate interference limits were needed.[55/] In contrast, satellite interests again fail to provide any demonstrable evidence of the need for aggregate interference limits. Bare assertions that the

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52/ *See* SIA Comments at 7; *see also* Comments of Iridium Communications, Inc., GN Docket No. 14-177, *et al.*, at 7-8 (filed Jan. 23, 2018) (claiming that terrestrial operations near an Iridium earth state would contribut to the aggregate interference problem).

53/ CTIA Comments at 13.

54/ Nokia Comments at 3-4.

55/ *Id.* at 4.

environment of the 24 GHz band is similar to the 28 GHz and 47 GHz environments is insufficient to justify an aggregation interference limit in the band. The Commission should not disturb its earlier decision and continue to decline to set limits to address aggregate interference.

## III. THE REQUEST REGARDING END-USER EQUIPMENT IN THE 37.5-40 GHz BAND IS PROCEDURALLY INAPPROPRIATE

In the *First Report and Order and Further Notice of Proposed Rulemaking*, the Commission sought comment on amending its Part 25 rules to repeal the prohibition on satellite user equipment in the 37.5-40 GHz band.[56/] In the *Memorandum Opinion and Order*, the Commission determined that allowing satellite earth stations in the 37.5-40 GHz band would not be in the public interest and that FSS proponents failed to demonstrate that permitting satellite end-user equipment in the 37.5-40 GHz band is necessary or appropriate.[57/]

SOM1101 argues that the Commission should remove the prohibition on satellite end-user equipment in the 37.5-40 GHz band, explaining that the equipment would be used on a co-primary basis.[58/] SOM1101's comments appear to be an untimely petition for reconsideration without substantive justification. Therefore, the Commission should deny SOM1101's request and not disturb its prohibition on satellite end-user equipment in the 37.5-40 GHz band.

## IV. CONCLUSIONS

T-Mobile applauds the Commission's continued efforts to make millimeter wave spectrum available for advanced and innovative 5G services. In order to ensure the greatest deployment of 5G services and technologies, the Commission should begin the process to auction as many of the allocated millimeter wave bands as soon as possible and continue to

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56/ *Use of Spectrum Bands Above 24 GHz For Mobile Radio Services, et al.,* Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd. 8014, ¶501 (2016).

57/ *Memorandum Opinion and Order* ¶¶ 217-218.

58/ Comments of SOM1101 LLC, GN Docket No. 14-177, *et al.*, at 1 (filed Jan. 23, 2018).

investigate additional bands that can be allocated for terrestrial mobile use. Moreover, the Commission should ensure operability across the 24 GHz bands; resolve the pending issues regarding use of the 37-37.6 GHz band (so long as such actions do not delay an auction of the remaining 37/39 GHz band); decline to adopt any additional performance metrics at this time; and limit broader satellite use of the 24 GHz band.

Respectfully submitted,

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